Exploring the Relationship Between Self-Directed Learning and Research Competency in Graduate Students

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Abstract

This purpose of this study was to examine the relationship between self-directed learning and research competency in graduate students. The participants were graduate students studying at the master's degree level in education programs at one institution of higher education. The total number of participants in this study was sixty-five students (N=65). The Self-Directed Learning Rating Scale (SDLRS) developed by Guglielmino (1977, 1991), was used as the main instrument to evaluate graduate students' self-directed learning readiness. Data pertaining to questions related to the students' assessment of their research competencies were also obtained. Analysis of the results showed a moderate correlation ($r = .45$ $p < .01$) between Self-Directed Learning Readiness and Research Competency. The results indicate that higher levels of Self-Directed Learning Readiness have a positive effect on the reported level of research competencies. The results of this study indicate that inclusion of self-directed learning (SDL) approaches for graduate students may have beneficial results in improving their research competency that can also contribute to the overall quality of research conducted by graduate students.

***Keywords*:** self-directed learning (sdl), research competency, graduate students

Introduction

A critical component in the successful completion of graduate studies is the ability to conduct and produce quality research. Graduate students must have the necessary skills and abilities to gather information, apply research methods, and analyze data effectively according to research standards. This research capacity involves being able to select and plan appropriate research using quantitative or qualitative methodology, selection and/or construction of instruments, appropriate data analysis techniques including statistical and non-statistical methods, and the overall ability to evaluate and communicate results in a well-organized and logical manner.

Unlike their undergraduate counterparts, graduate students are expected to demonstrate higher levels of self-sufficiency in their academic endeavors. They have already completed a certain amount of academic work and are expected to demonstrate increased degrees of maturity, experience, confidence and motivation. Working towards a graduate degree demonstrates the individual's conscious decision to apply themselves for further study whether it be for reasons of career enhancement, knowledge attainment or personal ambition.

According to Ellis (2006), adult learners are more likely to view education as a learning process for which they have a high degree of personal responsibility. This is in concurrence with self-directed learning which is seen as a means of study where most learning takes place at the learner's initiative and the learner has the main responsibility for planning, implementing, and evaluating their learning efforts (Hiemstra,1994). This self-led approach to learning is congruent with activities required of graduate students as they must take on the responsibilities of conducting research, including planning, locating of resources, and the eventual writing up of the report. As self-directed learners, graduate students can become more empowered to take initiative for these activities and not have to rely solely on structured guidance or the formal setting of teaching and learning.

Literature Review

Self-Directed Learning

Knowles (1975) defines self-directed learning as a process in which students take the initiative in planning, implementing, and evaluating their own learning needs and outcomes. This may occur with or without the help of others. One of the major characteristics of this type of learning is that students take responsibility for the learning and their response to instruction (Boud, 1995). According to Boyer, Edmonson & Artis (2011), self-directed learning enables to students to better reach their potential. If coupled with traditional learning formats, educators can better engage their students.

Self-directed learning should be incorporated into the curriculum to encourage students to become more self-sufficient and to take more responsibility along with increased personal initiative in the learning process and content. According to Grow's Staged Self-Directed Learning Model (1991), learners advance through various stages of increased self-direction. Instructors can encourage or discourage that development by the methods they utilize in the classroom. Therefore, appropriately applied teaching methods can encourage the advancement to higher stages of self-direction. Teaching styles that lower the amount of instructor control or guidance are said to increase levels of responsibility in students (Candy, 1991).

The concept of self-directed learning stems from research in adult education. Self-directed learning is also known by various other terms such as independent learning, self-planned learning, autonomous learning, or self-education (Hiemstra, 2004; Robertson, 2005). Basically, the general framework, regardless of how it is referred to, includes the process where individual learners determine their own learning in regard to the goals, processes, resources, and evidence for assessment.

In order to attain a level of self-directed learning, a change in the individual's perspective or a shift in paradigm is needed (Brookfield, 1988). According to Candy (1991), self-direction is an outcome or product of learning (personality characteristic) and

a process of learning (instructional method). There are four related phenomena that are involved: self-management, personal autonomy, learner control, and autodidaxy. Self-management and personal autonomy are considered goal categories. Self-management is explained as the willingness to conduct one's own education. Personal autonomy is the capacity to decide for oneself. Learner control and autodidaxy are considered process categories. Learner control is related to the mode of organization of instruction in formal settings. Autodidaxy refers to self-education, without the guidance of others.

Characteristics of Self-Directed Learners

According to the literature, self-directed learners can be described as having the following features: independence, self-management, a desire for learning, and problem solving (Knowles, 1975; Brockett & Hiemstra, 1991; Candy, 1991; Merriam & Caffarella, 1991; Guglielmino & Guglielmino, 1991; Gibbons, 2002). These four features are explained as:

1. Independence: self-directed learners are able to drive the learning process (planning, analysis, and execution) through their own initiative.
2. Self-management: self-directed learners are able to efficiently manage their time and energy towards identifying what is needed to reach their goals and carrying out actions to reach those goals.
3. Desire for learning: self-directed learners are motivated and possess a strong desire to expand their knowledge.
4. Problem-solving: self-directed learners are efficient in utilizing available resources, overcoming obstacles, and solving problems.

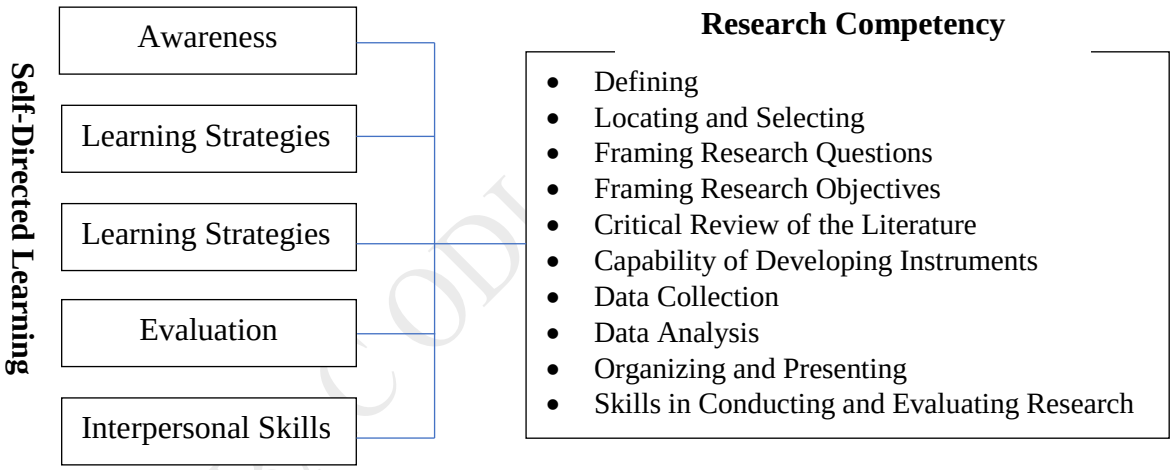
As described above, these four characteristics serve to set self-directed learners apart from other types of learners. Nonetheless, despite the independent nature of self-directed learners, there is still a necessity for them to have interaction with peers in order to exchange ideas and information (Brookfield, 1985).

The Self-Directed Learning Rating Scale

The Self-Directed Learning Rating Scale or SDLRS, was developed by Lucy Guglielmano in 1977. It is also known as the Learning Preference Assessment (LPA). It is the most widely used assessment in the field of self-directed learning (Merriam, Caffarella, & Baumgartner, 2007). The SDLRS is a self-report questionnaire with Likert-type items that is designed to measure attitudes, skills, and characteristics that make up an individual's current level of readiness to manage their own learning. The original SDLRS contained 58 items. Items on the SDLRS contain questions related to personality characteristics, attitudes, values and abilities of the self-directed learner (Guglielmino, 1977).

Various studies have utilized the SDLRS as a measure of self-directed learning. A study of self-directed learning and outcomes with medical students showed that those medical students who had high scores on the SDLRS also demonstrated high levels of clinical performance (Shokar, Shokar, Romero, & Bulik, 2002). In a study of experiential learning environments where the SDLRS was used as one of the instruments to assess levels of self-directed learning and life-long learning, it was reported that there was a positive correlation between scores on the SDLRS and self-directed learning for that particular experiential learning program (Juisto & DiBiasio, 2006). According to researchers, the SDLRS as developed by Guglielmano in 1977, has made significant contributions in terms of related research concerning self-directed learning (SDL). It has also faced challenges over the years as to the validity of the scale, that has nonetheless remained unresolved. Despite this, there remains widespread support and use of the SDLRS (Stockdale and Brockett, 2011).

Conceptual Framework of the Study



Methodology

The following operational definitions will form the basis of this research:

Self-Directed Learning: as utilized in the study, the control that students have in the choice and design of their learning experiences which include: awareness, learning strategies, learning activities, evaluation, and interpersonal skills.

Research Competency: refers to the abilities related to conducting research comprised of defining, locating and selecting, framing research questions, framing research objectives, critical review of the literature, capability of developing research instruments, data collection, data analysis, organizing and presenting skills, and evaluating research.

The following research objectives were postulated for this study:

Research Objective One: to identify the relationship between self-directed learning and research competency in graduate students.

Research Objective Two: to examine students' overall perceptions and attitudes towards their self-directed learning capabilities and research competency.

Instrument Development

A critical component of this study intended to measure self-directed learning and its relationship to the research competency of graduate students in educational programs who were working on their graduate theses. Because some of the items on the original SDLRS did not fit the context and focus of this study, the original questionnaire was modified to provide a more context fitting and practical instrument for the study. Therefore, the final number of questions relating to self-directed learning was 60 questions pertaining to Awareness, Learning Strategies, Learning Activities, Evaluation and Interpersonal Skills. An additional 10 questions related to research competencies were derived from a systematic literature review and experts. All questions, aside from demographic questions, on the instrument were measured on a five-point Likert scale.

The instrument was divided into three sections. Section A included questions pertaining to student demographic information including age, gender, class, current program, ethnic group, and current enrollment status. Section B included the 60 questions related to Self-Directed Learning (SDL) with 12 questions for each component: Awareness (A), Learning Strategies (LS), Learning Activities (LA), Evaluation (E), and Interpersonal Skills (IS). The final section, Section C included the ten questions related to Research Competency (RC).

Validity and Reliability of Instrument

The instrument containing 70 questions was evaluated for content validity by a panel of experts. The final instrument was pilot tested for reliability on 30 students not included in the final sample. The alpha coefficients for each of the components are shown in the following table.

Table 1

Summary of Alpha Coefficients for Instrument

Component	Alpha Coefficient
Overall Self-Directed Learning (SDL)	0.942
Awareness (A)	0.855

Learning Strategies (LS)	0.938
Learning Activities (LA)	0.911
Evaluation (E)	0.865
Interpersonal Skills (IS)	0.869
Research Competency (RC)	0.811

Participants

The number of participants in this study were comprised of 71 graduate students from education programs at one institution of higher education in Thailand. All participants had completed their coursework in educational research and were in the process of preparing for their proposal defense. After initial evaluation of the questionnaires, six questionnaires were unable to be included in the study due to incomplete data resulting in a total number of 65 (N=65). There were a total of 33 female respondents (50.8 percent) and 32 male respondents (49.2 percent). Thirty-three respondents were from the Educational Administration program and 32 respondents were from the Curriculum and Instruction program. The ethnic composition of the respondents was: 63.1 percent non-Thai Asians, 12.3 percent European, 9.2 percent Thai, 6.2 percent American, and 9.2 percent other ethnic. Fifty-six percent were full-time students and 43.1 percent were part-time students.

Findings

Analysis of the data was conducted using a statistical software package. Correlational analysis was used to test the data. The significance level was set at $p < 0.05$. Results indicated that age and class/year of student were not correlated with research competency.

Research Objective One: analysis of the data revealed that there was a moderate correlation between Self-Directed Learning and Research Competency ($r = .45$, $p < .01$). Individually, each component of Self-Directed Learning was also moderately correlated to Research Competency. Interpersonal Skills had the highest correlation with Research Competency ($r = 0.46$, $p < .01$), followed by Awareness ($r = 0.44$, $p < .01$), Evaluation ($r = 0.40$, $p < .01$), Learning Activities ($r = 0.39$, $p < .01$), and Learning Strategies ($r = 0.30$, $p < .01$) respectively. Table 2 shows the results of the correlational analysis for each of the components.

Table 2

Correlation coefficients of Self-Directed Learning and Research Competency

	A	LS	LA	E	IS	SDL	RC
Awareness (A)	1						
Learning Strategies (LS)	.554**	1					
Learning Activities (LA)	.576**	.635**	1				
Evaluation (E)	.479**	.591**	.785**	1			
Interpersonal Skills (IS)	.453**	.475**	.674**	.766**	1		
Self-Directed Learning (SDL)	.699**	.800**	.876**	.884**	.818**	1	
Research Competency (RC)	.438**	.303*	.393**	.398*	.462**	.453**	1

Research Objective Two: to examine students' overall perceptions and attitudes towards their self-directed learning capabilities and research competency. The following criteria were set to interpret the mean:

A mean score of	1.00 – 2.00	Low
A mean score of	2.10 – 3.00	Moderate
A mean score of	3.01 – 4.00	High
A mean score of	4.01 – 5.00	Very High

Table 3 shows the overall means and standard deviation pertaining to student's perceptions and attitudes regarding Self-Directed Learning and Research Competency.

Table 3

Means and Standard Deviations of Self-Directed Learning and Research Competency

	N	Minimum	Maximum	Mean	Standard Deviation
Awareness (A)	65	2.83	5.00	4.02	0.47
Learning Strategies (LS)	65	2.83	4.92	3.91	0.55
Learning Activities (LA)	65	2.58	5.00	3.72	0.55
Evaluation (E)	65	2.67	5.00	3.71	0.55
Interpersonal Skills (IS)	65	2.67	5.00	3.74	0.56
Self-Directed Learning (SDL)	65	2.95	4.98	3.83	0.45
Research Competency (RC)	65	1.70	5.00	3.58	0.53

Upon analysis of the descriptive statistics, it was found that the range of values for all the components of Self-Directed Learning had minimum values ranging from 2.58 to 2.83 and maximum values ranging from 4.92 to 5.0. The means for Research Competency had a much wider range than the means for Self-Directed Learning, which may indicate that students even though they may perceive themselves as having attributes of self-directed learning, still perceived themselves as having less research competency.

Discussion and Recommendations

The results of this study show that Self-Directed Learning has a moderate correlation with Research Competency ($r = .45$, $p < .01$). This positive relationship is indicative of how self-directed learning can contribute to a student's perception of how competent they are in conducting research related activities. Students who demonstrate a high level of self-directed learning also tend to be more curious, motivated and show a high level of self-initiative and this can translate to higher perceived and actual research competency. The findings of this research are supported by other studies where self-directed learning has been shown to be related to higher levels of academic performance in students of various disciplines such as engineering (Stewart, 2007), social and political science (Anderson, 1993), business (Morris, 1995), biology (Haggerty, 2000), and nursing students (Savoie, 1980). Having research competency results in stronger and more quality research output, which can be considered a major qualification of a good graduate student.

In regard to the wide range of mean scores for Research Competency as compared to Self-Directed Learning mean scores, this may indicate that students perceive themselves as being competent self-directed learners, but are unsure of their research competencies. This could be the result of two factors. Firstly, they are unsure of their research competencies as they may not have been exposed to enough coursework or have enough opportunities to conduct research to feel confident. If this is the case, a review of the curriculum may be in order so that students preparing for thesis work have adequate guidance regarding research and the requirements to produce quality research. Secondly, it may be the case that there is adequate coursework, but the content of coursework may be deficient in self-directed learning activities and teaching practices which can enhance their research competencies. Therefore, inclusion of self-directed learning activities and teaching methods in class can help to increase students' confidence in their research activities and thus increase the quality of the research output and consequently timely graduation.

As this study was limited to one institution of higher learning and the number of participants was small, results may be limited in terms of generalizability. Nonetheless, if viewed from the perspective of how self-directed learning is able to enhance adult learners, in this case graduate students, perceptions of their abilities, it would be beneficial to explore more in this area and possibly reconsider the addition of more self-directed learning techniques to give graduate students more confidence in their research work.

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